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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/533,604

04/29/2005

Tomitaro Hara

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11/07/2008

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EXAMINER

NGUYEN, KHANH TUAN

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/533,604

Applicant(s)

HARA ET AL.

Examiner

KHANH T. NGUYEN

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18, 19 and 21-34 is/are pending in the application.
- 4a) Of the above claim(s) 22-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Final

Response to Amendment

1. The amendment filed on 09/09/2008 is entered and acknowledged by the Examiner. Claims 18, 19 and 21-34 are currently pending in the instant application with claims 22-34 previously withdrawn from consideration. Claims 18, 19 and 21 are under Examination. Claims 1-17 and 20 were previously been canceled.
2. The rejection of claims 18, 19, and 21 under rejected under 35 U.S.C 102(b) and in the alternative under 35 U.S.C 103(a) over Tsuchida et al. (JP Pub. 2000-082329) is withdrawn in light of Applicant's amendment and/or remark.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had

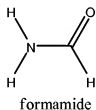
possession of the claimed invention. The amended limitation of "A proton conductor, including *an integrated complex composite of*" as alleged to be supported in the Specification at page 4, paragraph 48, lines 1-5; paragraph 58, lines 1-6; page 5, paragraph 62, lines 1-7; paragraph 66, lines 1-20; page 6, paragraph 86, lines 1-4; page 7, paragraph 95, lines 10-12; and paragraph 97, lines 12-15 in the remarks filed on 09/09/2008 (Pages 10-11) is not persuasive. The Examiner did not find support in the instant Specification to support the amended limitation.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. 2002/0160272 A1 (hereinafter Tanaka).

With respect to claims 18 and 21, Tanaka teaches a modified electrolyte membrane having proton conductivity [0002 and 0005]. The modified electrolyte membrane provides excellent heat resistance, strength and electric conductivity when it is applied to an electrochemical device under server conduction [0021 and 0023]. The said modified electrolyte membrane is considered a proton conductor. Tanaka teaches said modified electrolyte membrane comprises of a solid polymer such as

perfluoro- polymer (e.g. Nafion) comprising of plural acid groups introduced to the side chain of said polymer ([0015] and [0034]). The acid groups includes $\text{--SO}_3\text{H}$ [0050] as recited in claim 21. The acid groups of Tanaka are considered as protoic dissociation groups. Tanaka further teaches the amount of protoic dissociation groups in the entire electrolyte can be controlled depending on the number of protoic dissociation groups introduced into the side chains, and the introduction of said groups does not change the structure of the main chain [0034]. The presence of said protoic dissociation groups on the side chain of the perfluoro- polymer is considered readable on $n \geq 1$. Thus, said polymer of Tanaka is readable on the first compound. Tanaka also teaches contacting said polymer with an amine compound to form the modified electrolyte membrane [0044, 0045 and 0059]. The amine compound is a formamide compound when one hydrogen atom of ammonia is substituted with a formyl group [0053 and 0054].



The structure of Tanaka's amide compound, e.g. formamide compound, is readable on the second compound when R₂ and R₃ of the claimed compound are Hydrogen, respectively. The modified electrolyte membrane of Tanaka is considered an integrated complex since the said membrane comprises of similar ingredients, i.e. first compound and second compound, for the same utility.

The claims differ from Tanaka by reciting the number of moles of the protoic dissociation group (axn) is greater than or equal to 10 and less than or equal to 30.

However, it would have been obvious to the skilled artisan to produce the claimed proton conductor as suggest by Tanaka having proton conductor with the number of moles of a protoic dissociation group greater than or equal to 10 and less than or equal to 30 because Tanaka teaches the amount, i.e. number of moles, of protoic dissociation groups in the entire electrolyte can be controlled depending on the number of protoic dissociation groups introduced into the side chains [0034]. Further, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to arrive at the portion of 10 to 30 moles of protoic dissociation groups in the entire electrolyte because it is within the expected skills of a skilled artisan to be able to arrive at the optimum proportions through routine experimentation for best results. As to optimization results, a patent will not be granted based upon the optimization of result effective variables when the optimization is obtained through routine experimentation unless there is a showing of unexpected results which properly rebuts the *prima facie* case of obviousness. See *In re Boesch*, 617 F.2d 272,276,205 USPQ 215,219 (CCPA 1980). See also *In re Woodruff* 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990).

Regarding claim 19, it has been held by the court that structurally similar compounds, i.e. formamide compound, are generally expected to have similar properties. In *re Gvurik*, 596 F. 2d 1012,201 USPQ 552. Closely related homologues,

analogs and isomers in chemistry may create a prima facie case of obviousness. In *re Dillon* USPQ 2d 1 897,1904 (Fed. Cir. 1990); In *re Payne* 203 USPQ 245 (CCPA 1979); In *re Mills* 126 USPQ 5 13 (CCPA 1960); In *re Henze* 85 USPQ 261 (CCPA 1950); In *re Hass* 60 USPQ 544 (CCPA 1944). Thus, it would have been obvious to the skilled artisan at the time the invention was made to modify the proton conductor of Tanaka by substituting the formamide of Tanaka with another amine compound such as N, N-dimethyl formamide and N-methyl formamide to yield a predictable result.

Response to Arguments

7. Applicant's arguments with respect to claims 18, 19 and 21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is (571)272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/KTN/
10/30/2008

/DOUGLAS MC GINTY/
Primary Examiner, Art Unit 1796